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Current Challenges and New Frontiers in the Next Decade
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What can we learn from ULXs variability?

Friday, 13 September 2019 16:00 (2 minutes)

ULXs are extra-galactic X-ray binaries with X-ray luminosities in excess of 10^{39} erg s^{-1}, the Eddington limit for accretion onto a ~10M_{sun} object. They are composed of a compact object and a companion star. The nature of the compact object is still not clear: it could be a neutron star, a stellar mass black hole or an intermediate mass black hole. Since measuring the mass is not feasible in most cases, we are studying different approaches in order to gain insight onto the nature of these elusive objects. In particular I will address the variability of ULXs as a class, both in brightness and spectral shape. My work focuses on the study of variability on timescales from weeks to years.
I will show the result from the analysis of all the X-ray data of the Cartwheel galaxy, a spectacular example of collisional ring galaxy which hosts the largest number of ULXs for a single galaxy. I will also present the long term variability characteristics of a sample of ULXs observed by Swift.
I will discuss my findings in the context of black hole and neutron star variability.

Topic

Compact and diffuse sources in galaxies and in the Galactic Center

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